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ABSTRACT

In 1997, the Maryland Community Colleges Technology Council (MCCTC) undertook a survey of the state's 18 community colleges to assess the status of instructional and administrative technologies and their needs for improvement for the following 5 years. Fifteen-page questionnaires were sent to the colleges requesting information on instructional technology in place, intercampus networks and distance learning initiatives, technology support, administrative systems, and campus technology infrastructure. An analysis of completed questionnaires indicated that the colleges employed 11,599 personal computers for instructional purposes and another 4,831 for administrative purposes, although only 28% of the computers represented current technology (i.e., Pentium 133 or faster). The colleges anticipated a need for 6,974 additional computers by the year 2003 and indicated that a total of 1,190 full-time faculty would need to be trained in multimedia instructional techniques and distance learning methodologies. In addition, the colleges reported a need for 226 additional technical support staff to install and maintain networks, hardware, and software. Administrative systems improvements and infrastructure upgrades were also needed on most campuses. Appendixes provide a proposal for enhancing Maryland's community college technology, including discussions of necessary enhancements, funding limitations, and four specific strategies for improving technology; the survey instrument, cover letter, and guidelines for completing the questionnaire; and tables of college responses grouped by college size. (YKH)

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ED 411 025

Maryland Community Colleges Technology Needs Assessment Survey

Final Technical Report

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Maryland Community Colleges

Technology Council

September 1997

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Maryland Community Colleges
Technology Needs Assessment Survey

Sponsored and Conducted by the

Maryland Community Colleges Technology Council

With Support from the
Maryland Community College Research Group

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Technology Needs Assessment Survey
August 1997

Executive Summary

During June and July of 1997, the Maryland Community Colleges Technology Council conducted a survey of all 18 community colleges in Maryland to determine the existing state of campus instructional and administrative technologies, and to learn the technology needs and plans of the colleges for the following five years. The survey asked about instructional technology, intercampus networks and distance learning initiatives, technology support, administrative systems, and campus technology infrastructure. Highlights included:

- The 18 community colleges in Maryland employed 11,599 personal computers for instructional purposes, and an additional 4,831 personal computers for administrative functions. Only 28 percent of the total 16,430 computers were current technology, defined as using a Pentium 133 or faster processor.

- The colleges anticipated needing 6,974 *additional* computers for instructional and administrative purposes by the year 2003, for a total planned statewide computer inventory of 23,404.

- To fulfill college plans, a total of 1,190 full-time faculty needed to be trained in multimedia instructional techniques between July 1997 and the year 2003. A total of 797 needed training in distance learning methodologies.

- By the year 2003, college plans called for constructing or retrofitting 474 multimedia classrooms, 61 classrooms for interactive video distance learning, and 292 classrooms with satellite downlink connections.

- The colleges needed 226 *additional* technical support staff to install and maintain instructional and administrative networks, hardware, and software.

- Administrative systems needed improvements at a majority of campuses. Less than half of the campuses had fully integrated systems running on relational databases on client-server platforms. Electronic interfaces were scarcely used, and few functions were Web-enabled.

- Infrastructure upgrades were needed at most campuses.

Background

In October 1996, the Maryland Community College Facilities Planners Council presented *A Proposal for Enhancing Information Technology in Maryland Community Colleges* to the Maryland Council of Community College Presidents. The facilities planners described the following challenge facing the state's community colleges:

> Maryland community colleges face a major challenge posed by the rapid pace of change accompanying the emerging Information Age. Every five years, or less, a major new development cycle begins in one of the many new technologies associated with communicating information. Maintaining current state-of-the-art technology is crucial to the success of community colleges, especially as they broaden services to Maryland's business and industry community. Furthermore, to achieve currency with the state of the art in many of the newer information age technologies, Maryland's community colleges need to make substantial expenditures to upgrade campus telecommunications infrastructure and equipment, classroom and laboratory instructional technology, and training for faculty and staff in the use of these technologies.
>
> To successfully meet this challenge, Maryland community colleges must have a reliable source of funding that will help the colleges catch up in those areas where they lag technologically, and that will be dedicated to funding the enormous, reoccurring investment costs associated with keeping the technology up to date.

Among the initiatives advocated in the proposal for prompt action were creation of a statewide technology affinity group, administration of a statewide technology needs assessment survey, and development of a statewide community college technology plan and funding strategy. (See the appendix for a copy of the full proposal.) The council of presidents approved these initiatives.

The first meeting of the Maryland Community Colleges Technology Council took place February 20, 1997, at Catonsville Community College. The Council membership of 14 included facilities planners, institutional research directors, data processing directors, a business officer, continuing education deans, instructional vice presidents and deans, and a student services dean. Ex-officio members included representatives from the Maryland Higher Education Commission, Maryland Department of Budget and Management, and the Maryland Information Technology Center. Dr. Joseph F. Shields, president of Carroll Community College, represented the community college presidents on the Council. The Council co-chairs were Jon Larson of Frederick Community College and Joseph White of Montgomery College.

During March, April, and May, four subgroups of the Council drafted questions for a statewide community college technology needs assessment survey. Craig Clagett of Prince George's Community College prepared a 15-page questionnaire, with five sections covering instructional technology, intercampus networks and distance learning initiatives, technology support, administrative systems, and campus technology infrastructure. The questionnaire was finalized in early June. On June 13, 1997, questionnaire packets including guidelines for completion were mailed to the presidents of all 18 Maryland community colleges. (Copies of the cover letter, guidelines for completion, and the questionnaire are in the appendix.)

During July and August, responses from the colleges were entered into a file for analysis. Response frequency tables for three college cohorts (based on FTE enrollment) were circulated for review and evidence of consistency in question interpretation. Wallace Knapp of Catonsville Community College and Ray Perry of Cecil Community College served as reviewers. During August, this report was prepared by Craig Clagett.

Overview of Findings

In this section, tables displaying major findings of the survey are presented. More detailed tables are found in the analyses comprising the balance of this report. Individual college responses to each questionnaire item are appended.

As of July 1997, the 18 Maryland community colleges were using 16,430 personal computers on their campuses. A total of 4,639, or 28 percent, were current technology, defined as having a Pentium 133 (or equivalent) or faster processor. Thus seven in ten computers were already out of date, a generation behind the technology used in business.

Personal Computer Inventory, Statewide, July 1997
Maryland Community Colleges

	Instruction	Administration	Total
Current technology	3,372	1,267	4,639
Old technology	8,227	3,564	11,791
Total PC inventory	11,599	4,831	16,430

To meet planned facilities expansion and anticipated enrollment increases, the 18 colleges identified needs for nearly 7,000 additional computers, with over 90

percent needed for instructional purposes. Together with the existing inventory, the colleges collectively would compile a personal computer inventory of over 23,000 computers by the year 2003 if current plans were fulfilled. More significant than the monies needed for this growth, however, was the implication of the *replacement costs* necessary to keep this inventory up to date on a continuous basis. Personal computer technologies become obsolete every three years, and community colleges must keep up with the market to fulfill their mission of preparing a capable, well-trained workforce meeting the needs of today's business and industry. A three-year replacement cycle would imply purchase of 7,800 computers annually.

Anticipated Personal Computer Inventory, Statewide, 2003
Maryland Community Colleges

	Instruction	Administration	Total
Existing inventory	11,599	4,831	16,430
Additional PCs needed	6,406	568	6,974
Total anticipated inventory	18,005	5,399	23,404

Equal to or greater than the challenge of maintaining hardware and software currency, however, may be the human resources challenge. Community college faculty, both full-time and adjunct, must be fully trained in the new technologies of instruction. As of July 1997, only a few hundred community college faculty statewide were proficient in the use of the new instructional technologies associated with distance learning and multimedia classrooms. The survey found a need for over 1,800 faculty to be trained in distance learning technologies, and for nearly 3,000 faculty to be trained in using external telecommunications networks and presenting mediated information in the classroom.

Faculty Training Needs, Statewide
Total Needing Training by Year 2003

Mode of Instruction	Full-time Faculty	Adjunct Faculty
Distance learning	797	1,009
Multimedia	1,190	1,758

To exploit the new technologies, classrooms must be properly outfitted. As a 1991-92 state-appointed study group said in *The Telecommunications Requirements of Academic Facilities*, "all instructional spaces should be designed to allow faculty members to utilize electronic instructional devices--computer-generated graphics, video display screens, video monitors, access to electronic networks external to the building and to the campus." In the survey the 18 community colleges identified the need to retrofit or construct 474 classrooms to meet this capability standard. In addition, the colleges expressed their needs to provide satellite downlinks to 292 classrooms, and to construct and equip 61 additional classrooms for interactive distance learning.

Electronic Classroom Needs, Statewide
Total Current, Additional Classrooms Needed by Year 2003

Classroom Capability	Existing Classrooms	Additional Classrooms Needed
Distance learning (interactive video)	35	61
Multimedia	215	474
Satellite downlink	65	292

Maryland community colleges employed the equivalent of nearly 277 full-time employees to support instructional and administrative technologies as of July 1997. The colleges said they needed 226 *additional* full-time staff to adequately support the technologies they envisioned using in the year 2003. A third of the colleges cited technical support staffing among their top three campus technology priorities.

Technical Support Staff Needs, Statewide
Total Current, Additional FTE Staff Needed by Year 2003

Technology Supported	Currently Employed	Additional Staff Needed
Administrative networks	78.5	59.0
Interactive video/distance learning	38.0	58.0
Multimedia classrooms/laboratories	160.3	109.2
Total technical support staff	276.8	226.2

Members of the Technology Council agreed that campus administrative systems should be fully integrated, maintained on a relational database, run on client-server platforms, year 2000 compliant, and accessible by a Web browser. None of the 18 colleges met this standard in July 1997. Less than half of the colleges reported integrated systems or full use of relational databases. Only five colleges had all their systems ready for the year 2000. Only three had transitioned to client-server platforms. Administrative systems were Web-enabled at only one campus. Council members also advocated increased use of electronic interfaces for administrative functions, yet with the exceptions of payroll direct deposit and student transcript distribution, electronic transactions were underutilized.

Effective use of technology requires an appropriate campus infrastructure. A majority of community college campuses had all buildings connected to a fiber optic backbone, administrative and faculty offices connected to the Internet, and remote locations linked to the main campus via a wide area data communications network. Less than half, however, had network access in all classrooms and laboratories. Only ten had conduit adequate for campus needs through the year 2003. Only seven reported adequate fire detection, security, or energy management networks. Respondents at six colleges reported a need to upgrade campus telephone systems.

Organization of this Report

The remainder of this technical report on the statewide technology needs assessment survey provides more detailed analyses of college responses, grouped by college size. The survey findings are reported under the following headings:

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Instructional computer inventory	7
Faculty proficiencies and training needs	10
Existing and planned electronic classrooms	12
Distance learning systems	14
Administrative systems	15
Administrative computer inventory	18
Technical support staffing	19
Campus infrastructure	21
Campus technology plans	24
Campus priorities	25

Responses were aggregated by college size, in terms of full-time-equivalent (FTE) enrollment, as follows:

Small colleges (‹1,700 FTE)	Allegany, Carroll, Cecil, Chesapeake, Garrett, Wor-Wic
Mid-size colleges	Charles, Dundalk, Frederick, Hagerstown, Harford, Howard
Large colleges (›5,000 FTE)	Anne Arundel, Baltimore, Catonsville, Essex, Montgomery, Prince George's

Individual college responses to cach questionnaire item are in the appendix.

I. Instructional Computer Inventory

In July 1997, the 18 Maryland community colleges had 11,599 personal computers in use in instruction, student assignments, library research, faculty offices, student testing and assessment, and other instructional support activities. Only three in ten were current with the market, possessing a Pentium 133 or faster processor. The colleges indicated a need for over 6,400 additional computers to fulfill instructional plans through the year 2003. In total, the colleges anticipated an instructional computer inventory of 18,005 in place within five years.

Existing and Planned Instructional Computer Inventory
Community Colleges Statewide

Location and Use of Computers	Computers in Use Now		Additional Computers Needed by Year 2003	Total Computers Needed in Year 2003
	Less than current technology	Current technology		
Instructional classrooms/labs	4,634	2,148	3,040	9,822
Open computer laboratories	1,161	329	1,494	2,984
Library (student use)	262	269	627	1,158
Faculty offices	1,716	533	574	2,823
Placement, testing, and assessment	383	58	421	862
Other computers used for instruction	71	35	250	356
Total instructional computers	8,227	3,372	6,406	18,005

The six smaller colleges reported an instructional computer inventory of 1,738, an average of nearly 300 per campus. They planned for 1,048 additional computers.

Existing and Planned Instructional Computer Inventory Small Colleges				
	Computers in Use Now		Additional	Total
Location and Use of Computers	Less than current technology	Current technology	Computers Needed by Year 2003	Computers Needed in Year 2003
Instructional classrooms/labs	622	349	480	1,451
Open computer laboratories	274	9	242	525
Library (student use)	52	74	73	199
Faculty offices	244	40	89	373
Placement, testing, and assessment	58	4	89	151
Other computers used for instruction	8	4	75	87
Total instructional computers	1,258	480	1,048	2,786

The mid-size colleges had an inventory of 2,960 instructional computers, or nearly 500 per campus. They planned to add over 2,100 more during the next five years.

Existing and Planned Instructional Computer Inventory Mid-size Colleges				
	Computers in Use Now		Additional	Total
Location and Use of Computers	Less than current technology	Current technology	Computers Needed by Year 2003	Computers Needed in Year 2003
Instructional classrooms/labs	1,300	557	1,050	2,907
Open computer laboratories	270	65	321	656
Library (student use)	72	42	329	443
Faculty offices	415	88	140	643
Placement, testing, and assessment	91	8	134	233
Other computers used for instruction	37	15	130	182
Total instructional computers	2,185	775	2,104	5,064

The six larger colleges, with an average FTE enrollment in 1995-96 of 8,057 students, employed 6,901 computers for instruction and academic support (an average of 1,150 computers per college). They reported plans for 3,254 additional computers for instructional purposes, bringing the total inventory in five years to over 10,000.

Existing and Planned Instructional Computer Inventory
Large Colleges

Location and Use of Computers	Computers in Use Now		Additional Computers Needed by Year 2003	Total Computers Needed in Year 2003
	Less than current technology	Current technology		
Instructional classrooms/labs	2,712	1,242	1,510	5,464
Open computer laboratories	617	255	931	1,803
Library (student use)	138	153	225	516
Faculty offices	1,057	405	345	1,807
Placement, testing, and assessment	234	46	198	478
Other computers used for instruction	26	16	45	87
Total instructional computers	4,784	2,117	3,254	10,155

The 18 colleges had total FTE enrollment in 1995-96 of 72,868 students and employed 11,599 computers for instructional purposes, for an average of 6.3 FTE students per computer. The average number of students per PC varied by college size, with the smaller colleges (1,309 average FTEs and 290 computers per campus) having 4.5 students per machine, the mid-size colleges (with an average 2,779 FTEs and 493 machines per campus) averaging 5.6 FTE per computer, and the larger colleges (with an average enrollment of 8,057 FTEs and 1,150 computers per college) averaging 7.0 students per computer.

The above calculations included all computers identified with instructional functions, including those in faculty offices, testing centers, and libraries. Restricting the counts to computers used by students in classrooms and laboratories, the statewide average in July 1997 was 8.8 FTE students per computer. By size, the smaller colleges averaged 6.3 students per computer, the mid-size colleges 7.6 students per computer, and the larger colleges 10.0 students per computer.

II. Faculty Instructional Technology Proficiencies and Training Needs

Perhaps surpassing the equipment challenges was the need for faculty training in the new instructional technologies. Statewide, the 18 community colleges reported a total of 554 faculty proficient in multimedia instruction, equally split between full-time and adjunct faculty. The colleges anticipated needing over 3,500 such faculty by the year 2003. Thus, they had approximately one-sixth the trained faculty they anticipated needing in 2003. Nearly 3,000 faculty would need training during the next five years to meet the need for multimedia instruction.

Similarly, the colleges reported that the number of faculty proficient in interactive video distance learning techniques represented only 15 percent of their anticipated needs. Statewide, 324 faculty were identified as possessing these skills, while the colleges foresaw a need for 2,130 distance learning faculty in the year 2003. Over 1,800 faculty would need training in distance learning to meet the anticipated demand.

Full-time and Adjunct Faculty Proficiencies and Training Needs
Community Colleges Statewide

	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Full-time faculty proficient in using multimedia classrooms	276	1,190	1,466
Part-time, adjunct faculty proficient in multimedia	278	1,758	2,036
Full-time faculty proficient in distance learning techniques	202	797	999
Part-time, adjunct faculty proficient in distance learning	122	1,009	1,131

The need for faculty training in multimedia classroom instruction and interactive video distance learning techniques was shared among colleges of all sizes. The number of instructors needing training was far greater than the number currently proficient in these teaching methods at all colleges. The following three tables summarize the need for training by college size.

Full-time and Adjunct Faculty Proficiencies and Training Needs Small Colleges			
	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Full-time faculty proficient in using multimedia classrooms	68	202	270
Part-time, adjunct faculty proficient in multimedia	33	203	236
Full-time faculty proficient in distance learning techniques	50	144	194
Part-time, adjunct faculty proficient in distance learning	16	157	173

Full-time and Adjunct Faculty Proficiencies and Training Needs Mid-size Colleges			
	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Full-time faculty proficient in using multimedia classrooms	125	406	531
Part-time, adjunct faculty proficient in multimedia	164	745	909
Full-time faculty proficient in distance learning techniques	53	217	270
Part-time, adjunct faculty proficient in distance learning	28	220	248

Full-time and Adjunct Faculty Proficiencies and Training Needs Large Colleges			
	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Full-time faculty proficient in using multimedia classrooms	83	582	665
Part-time, adjunct faculty proficient in multimedia	81	810	891
Full-time faculty proficient in distance learning techniques	99	436	535
Part-time, adjunct faculty proficient in distance learning	78	632	710

III. Existing and Planned Electronic Classrooms

Statewide, the 18 community colleges had 35 classrooms equipped for interactive distance learning in July 1997. To meet state and local initiatives for expanding the reach and scope of distance learning, 61 additional interactive video classrooms were needed by the year 2003. Sixty-five classrooms were capable of receiving satellite feeds in July 1997; the colleges saw a need for five times that many. A total of 215 classrooms were equipped for multimedia instruction at the time of the survey. The colleges identified plans for retrofitting or constructing 474 more.

Existing and Planned Electronic Classrooms Community Colleges Statewide			
Classroom Capabilities	Classrooms in Use Now	Additional Classrooms Needed by 2003	Total Classrooms Needed in Year 2003
Interactive fiber-optic video	16	25	41
Interactive digital compressed video	19	36	55
Satellite downlink	65	292	357
Multimedia	215	474	689

Existing and planned electronic classrooms by college size were as follows:

Existing and Planned Electronic Classrooms Small Colleges			
Classroom Capabilities	Classrooms in Use Now	Additional Classrooms Needed by 2003	Total Classrooms Needed in Year 2003
Interactive fiber-optic video	5	10	15
Interactive digital compressed video	5	11	16
Satellite downlink	13	126	139
Multimedia	48	113	161

Existing and Planned Electronic Classrooms Mid-size Colleges			
Classroom Capabilities	Classrooms in Use Now	Additional Classrooms Needed by 2003	Total Classrooms Needed in Year 2003
Interactive fiber-optic video	7	7	14
Interactive digital compressed video	9	10	19
Satellite downlink	26	109	135
Multimedia	132	146	278

Existing and Planned Electronic Classrooms Large Colleges			
Classroom Capabilities	Classrooms in Use Now	Additional Classrooms Needed by 2003	Total Classrooms Needed in Year 2003
Interactive fiber-optic video	4	8	12
Interactive digital compressed video	5	15	20
Satellite downlink	26	57	83
Multimedia	35	215	250

IV. Distance Learning Systems and Intercampus Networks

In 1993, three community colleges in Western Maryland--Allegany, Garrett, and Hagerstown--were linked by a fiber-optic, full-motion video network installed by Bell Atlantic. This became the prototype for the Maryland Interactive Distance Learning Network (MIDLN), created in September 1994 with the signing of contracts between Bell Atlantic, AT&T, and the state of Maryland. In addition, individual colleges have invested in compressed video and other interactive video systems, as well as satellite, cable, Internet, and other distance learning technologies. The survey documented the extent of distance learning capabilities among Maryland community colleges in July 1997, as well as plans for the following five years.

A majority of community colleges offered interactive distance learning in 1997, through the Maryland Interactive Distance Learning Network, interactive compressed video systems, or the Integrated Services Digital Network (ISDN). Only one college--Cecil--did not have a video network capability, instead opting for Internet-based instruction for all its distance learning offerings. Most colleges provided satellite downlinks, but none had uplink capability. Twelve colleges provided instruction over their own cable television channels. Ten of the 18 colleges offered instruction over the Internet. Only four colleges delivered instruction over college intranets.

Current Distance Learning Networks and Activities
Number of Campuses

	Small Colleges	Mid-size Colleges	Large Colleges	Total
MIDLN	4	4	3	11
Interactive Compressed Video	3	4	3	10
ISDN	3	4	3	10
Other interactive video	1	2	2	5
College cable TV channel	3	4	5	12
Satellite downlink	4	5	5	14
Satellite uplink	0	0	0	0
Audio/phone instruction	0	1	4	5
BBS instruction	2	1	4	7
Internet instruction	4	2	4	10
Intranet instruction	1	1	2	4
Video-based courses	4	4	5	13

Distance learning plans for the next five years included increased use of interactive video networks, with 14 of the 18 colleges anticipated to be on MIDLN and 17 planning to use interactive compressed video. All 18 colleges expected to have satellite downlink capability, and eight hoped to have uplink capability as well. All but one college planned on offering instruction on the Internet. Intranet instruction was in the plans of 16 of the 18 colleges--four times the number offering it in July 1997.

Anticipated Distance Learning Networks and Activities, 2003
Number of Campuses

	Small Colleges	Mid-size Colleges	Large Colleges	Total
MIDLN	5	5	4	14
Interactive Compressed Video	5	6	6	17
ISDN	5	4	5	14
Other interactive video	5	5	3	13
College cable TV channel	5	5	6	16
Satellite downlink	6	6	6	18
Satellite uplink	3	4	1	8
Audio/phone instruction	2	3	4	9
BBS instruction	3	5	3	11
Internet instruction	6	6	5	17
Intranet instruction	5	6	5	16
Video-based courses	6	6	5	17

V. Administrative Systems

Respondents were asked to describe several features of their current administrative systems (including facilities, financial, foundation, human resources, payroll, and student databases). For most questions, respondents were asked to indicate whether all (defined as 95 percent or more), half but not all, some but less than half, or none of their systems met certain criteria. Individual responses to each item are appended. In the table below, a college was counted as having met the standard if it responded all (95 percent or more).

Administrative Systems, July 1997 Number of Colleges Meeting Standard				
Standard	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
All systems integrated	4	2	2	8
On client-server platform	1	2	0	3
On relational database	3	2	2	7
Year 2000 compliant	2	2	1	5
All systems Web-enabled	0	1	0	1
Running Windows 95	1	1	1	3

As can readily be seen, administrative systems across the state generally fell short of the standards of full integration, client-server platforms, relational databases, year 2000 compliant, and full Web access. Less than half had all administrative systems integrated or on a relational database system. Thirteen colleges were not ready for the year 2000. Only three colleges had administrative systems on client-server platforms. A single college had administrative systems Web-enabled. Three campuses had fully adopted Windows 95.

The questionnaire asked what vendors were used for administrative systems. A college could indicate more than one. Colleges reported great diversity in vendors, with SCT the most popular, with five college users--primarily large colleges. Computing Options and Datatel were next most popular, used by three colleges each. The only other vendor used by more than one college was AMS, with two users. Five colleges used systems developed in-house for at least some functions (see table on next page).

Administrative Systems Vendors, July 1997 Number of Campuses				
Vendor	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
SCT	0	1	4	5
Computing Options	1	0	2	3
Datatel	2	1	0	3
AMS	0	0	2	2
Ameritech	0	0	1	1
BiTech	1	0	0	1
Case Technologies Development	0	1	0	1
CMDS	1	0	0	1
Condata	0	1	0	1
FMIS	0	0	1	1
ISI	0	0	1	1
Software AG	0	1	0	1
In-house campus systems	1	2	2	5

Increasingly, organizations are providing information to others by transmitting data electronically. Most of Maryland's community colleges provided direct deposit of payroll into employee bank accounts, and two-thirds distributed student transcripts electronically. However, use of other possible electronic interfaces was scarce in July 1997.

Eight colleges made payroll tax payments electronically, five submitted Maryland State Pension System contributions electronically, and four deposited 403b retirement plan contributions electronically. Three or fewer colleges provided for electronic recording of purchase requisitions, purchase order distribution to vendors, employee time and attendance recording, or student grade reporting by faculty. No college made vendor payments by EDI technology.

Electronic Interfaces in Use, July 1997 Number of Colleges				
Function	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
Employee time/attendance	0	1	1	2
Payroll direct deposit	3	5	5	13
Payroll tax payments	3	3	2	8
Pension System contributions	2	2	1	5
403b plan contributions	2	2	0	4
Purchase requisition recording	1	1	1	3
Purchase order distribution	0	1	0	1
Vendor payments	0	0	0	0
Student grade recording	0	0	1	1
Student transcript distribution	3	4	5	12

VI. Administrative Computer Inventory

The 18 colleges used 4,831 computers in administrative offices in July 1997. Three-fourths of these machines were old technology, with processing speeds below 133 MHz.

Administrative Computer Inventory, July 1997 Maryland Community Colleges				
	Small Colleges	Mid-size Colleges	Large Colleges	Total
Current technology	159	283	825	1,267
Old technology	511	917	2,136	3,564
Total administrative PCs	670	1,200	2,961	4,831

By the year 2003, an additional 568 personal computers would be needed for administrative purposes, according to the survey respondents.

Anticipated Administrative Computer Inventory, 2003 Maryland Community Colleges				
	Small Colleges	Mid-size Colleges	Large Colleges	Total
Existing inventory	670	1,200	2,961	4,831
Additional PCs needed	98	145	325	568
Total anticipated inventory	768	1,345	3,286	5,399

VII. Technical Support Staffing

The explosive growth in computer inventory, campus networks, and software applications used at Maryland's community colleges has placed great demands on information systems staff. Six colleges listed support staffing among their college's top technological priorities. All colleges indicated that additional technical support personnel were needed to install and maintain the instructional technology, distance learning technology, and administrative systems they planned to have in place in the year 2003. Collectively, the colleges reported a need for 226 more full-time staff.

Technical Support Staff Community Colleges Statewide			
Employee Category	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Instructional technology technical support staff (FTE)	160.3	109.2	269.5
Distance learning technology technical support staff (FTE)	38.0	58.0	96.0
Administrative PCs/networks technical support staff (FTE)	78.5	59.0	137.5
Total support staff (FTE)	276.8	226.2	503.0

The six smaller colleges had less than 50 full-time-equivalent staff supporting technology in July 1997. Together, they anticipated needing 87 FTE employees by the year 2003.

Technical Support Staff Small Colleges			
Employee Category	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Instructional technology technical support staff (FTE)	20.0	16.5	36.5
Distance learning technology technical support staff (FTE)	10.5	10.5	21.0
Administrative PCs/networks technical support staff (FTE)	18.0	11.5	29.5
Total support staff (FTE)	48.5	38.5	87.0

Collectively, the mid-size colleges reported a need to double their technical support staff by the year 2003:

Technical Support Staff Mid-size Colleges			
Employee Category	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Instructional technology technical support staff (FTE)	35.3	31.2	66.5
Distance learning technology technical support staff (FTE)	8.0	20.0	28.0
Administrative PCs/networks technical support staff (FTE)	23.5	15.5	39.0
Total support staff (FTE)	66.8	66.7	133.5

The six larger colleges had a combined full-time-equivalent technical support staff numbering slightly over 160 in July 1997. This represented 57 percent of the total staffing they anticipated needing in 2003.

Technical Support Staff Large Colleges			
Employee Category	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Instructional technology technical support staff (FTE)	105.0	61.5	166.5
Distance learning technology technical support staff (FTE)	19.5	27.5	47.0
Administrative PCs/networks technical support staff (FTE)	37.0	32.0	69.0
Total support staff (FTE)	161.5	121.0	282.5

All together, the 18 colleges indicated a need to hire 226 additional technical support staff over the next five years.

VIII. Campus Infrastructure

Effective use of technology requires an appropriate campus infrastructure. Preferably, all campus buildings would be connected to a fiber-optic backbone network using category 5 UTP cabling. All classrooms, laboratories, and offices would be connected to the network. All faculty and administrative offices would have Internet access. All campus workstations could be linked to any appropriate campus computing resource. All remote sites would be linked to the central campus by a wide area network. Systems would be in place for building security, fire detection, and energy management. Campus conduit would be adequate for current and planned campus facilities, preferably with redundant pathing to all buildings.

Collectively, the 18 colleges fell short of this ideal. Half to three-quarters of the colleges met the standards for basic infrastructure components such as conduit, backbone, cabling, and faculty and administrative office access to networks. Only half had all student classrooms and laboratories connected. Less than half had adequate building security, fire detection, and energy management systems. The larger colleges were less likely to meet the infrastructure standards than the small and mid-size colleges.

Campus Infrastructures, July 1997 Number of Colleges Meeting Standard				
Standard	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
All buildings connected to fiber backbone	3	6	4	13
All buildings have category 5 UTP cabling	3	5	2	10
All laboratories connected to Internet	3	3	2	8
All classrooms with voice/data/video link	3	4	2	9
All administrative offices with Internet	5	6	3	14
All faculty offices with Internet	5	5	2	12
All faculty offices connected to admin. systems	4	5	2	11
Link any workstation to any campus computer	6	6	6	18
Wide area network linking all remote sites	5	5	4	14
Network management system	3	4	4	11
Building energy management network	3	3	1	7
Adequate fire detection network	4	2	1	7
Adequate campus security network	3	2	0	5
Existing conduit in adequate condition	5	3	6	14
Redundant pathing to all buildings	0	1	1	2
Conduit will support planned construction	4	1	5	10

The questionnaire asked what local area network bandwidths were currently in use. All colleges reported use of 10 MB Ethernet. Ten colleges had mainframe LANs. Half the colleges used 100 MB Ethernet. No other bandwidth was used by more than a third of the colleges.

Local Area Network Bandwidths in Use, July 1997 Maryland Community Colleges				
Bandwidth	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
10 MB Ethernet	6	6	6	18
100 MB Ethernet	1	5	3	9
4 MB Token Ring	1	0	1	2
16 MB Token Ring	1	1	3	5
ATM	1	0	1	2
FDDI	1	3	2	6
Mainframe	1	4	5	10

Two-thirds of the colleges reported that their telephone systems supported PBX technologies such as processing video and data, T1 and PRI-based links to service providers, and systemwide faxing. The same proportion also reported their telephone systems were adequate to meet campus needs anticipated in the year 2003. A third of the colleges provided students with touch-tone phone registration. Five colleges could handle bill payment and course add/drop through their phone network.

Telephone System Capabilities, July 1997 Maryland Community Colleges				
Function	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
Adequate capacity through 2003	4	3	5	12
Support new PBX technologies	4	4	4	12
Touch-tone registration	1	2	3	6
E-mail	0	0	1	1
Internet	0	0	1	1
Add/drop courses	0	2	3	5
Bill payment	0	2	3	5

A dial-in capability is necessary to provide maximum access to campus computing resources. A third of the colleges did not provide this. Only five colleges had provisions for all faculty and staff to dial in from off campus. Students at only three colleges had this access.

Dial-in Capabilities, July 1997 Maryland Community Colleges				
Group	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
All faculty and staff	1	1	3	5
Selected staff members	5	5	2	12
Students	0	0	3	3

IX. Campus Technology Plans

The survey asked if the colleges had prepared a Technology Master Plan since 1995. Nine colleges responded that they had; an additional eight colleges said they had partial plans. Only one college reported having no recent plan.

Most college technology plans included standards for fiber and copper cabling, equipment, and communication protocols. Fifteen of the colleges with plans included Internet/World Wide Web and campus intranet goals. Sixteen had plans incorporating interactive video distance learning systems. Fourteen specifically addressed faculty and staff training needs. Libraries were included in a similar number of campus plans. Thirteen colleges had established replacement schedules for PCs and other equipment included in their plans. Eleven colleges had plans for retrofitting classrooms for multimedia instruction.

Only half of the colleges had plans for energy management, security, or fire detection systems. Eight colleges included fiber and cable documentation in their plans. Seven of the 17 colleges with recent technology plans included alternative funding options such as leases, trade-ins, or private gifts.

Campus Technology Plans, July 1997 Number of Colleges				
Plan Attribute	Small Colleges (N=6)	Mid-size Colleges (N=6)	Large Colleges (N=6)	Total (N=18)
Fiber and copper cabling standards	6	5	6	17
Equipment standards	5	4	5	14
Communication protocol standards	5	4	6	15
User training standards	4	3	4	11
Telephone network	6	4	5	15
Video network	5	4	4	13
Data network	6	5	6	17
Internet/intranet network	6	4	5	15
Energy management systems	3	2	4	9
Fire protection systems	3	2	3	8
Security systems	3	2	4	9
Building conduits	4	5	6	15
Fiber/cable documentation	1	3	4	8
Replacement schedule for PCs	5	4	4	13
Retrofit multimedia classrooms	5	4	2	11
Interactive video/distance learning	5	5	6	16
Internet/WWW technology	6	4	5	15
Faculty and staff training needs	6	4	4	14
Library/learning resources systems	6	4	4	14
Alternative funding proposals	2	4	1	7

X. Campus Priorities

Respondents were asked, "Of all your campus technology needs, what are your college's top three priorities?" The colleges responded as indicated in the following table:

Campus Technology Priorities, July 1997	
Small colleges	
Allegany	1. Computer equipment upgrades to current technology 2. Distance learning equipment upgrades 3. Multimedia instructional equipment and training
Carroll	1. Ongoing replacement of labs, networks, and work stations on a 1/3 per year basis to maintain effective instructional delivery and administrative support 2. Continuing development of all distance learning delivery systems, with emphasis on Internet-based instruction and learning, and student support services 3. Expand computercentric instructional delivery by providing faculty with state-of-the-market technology and supporting resources
Cecil	To provide up-to-date equipment bringing voice/data/video capabilities to classrooms, labs, and faculty and administrative offices. This implies 1. regular upgrading of PCs, networks, and connectivity to the outside world 2. distance learning equipment 3. funding additional staff needed to support the equipment and training faculty and staff to use the equipment.
Chesapeake	1. Identifiable and sustainable funding 2. Cross-platform compatibility 3. Training for users and technical staff
Garrett	1. Interactive compressed video 2. Intranet/Internet 3. Computer labs
Wor-Wic	1. Implementing distance learning network 2. Upgrading computer laboratories to current technology 3. Upgrading existing computer network servers
Mid-size colleges	
Charles	1. New administrative system 2. Touch-tone registration 3. Enhancing Internet/intranet capability
Dundalk	1. Personnel, personnel, personnel 2. Hardware upgrades 3. New labs
Frederick	1. Interactive distance learning 2. Internet 3. Multimedia classrooms

Hagerstown	1. Technical support staff 2. Training/skill maintenance 3. Equipment upgrades
Harford	1. Incorporating WWW technologies into classroom instruction 2. Maintenance of current technologies 3. Upgrading to new technology
Howard	1. Planned replacements of PCs, networking equipment, administrative and financial systems 2. Telephone/computer integration 3. Acquiring new technology and corresponding curricular enhancements, including staff and faculty training
Large colleges	
Anne Arundel	1. Integrate technology into instruction across curricula 2. Maintain currency of hardware and software, including building the college network 3. Provide ongoing training and technical support
Baltimore City	1. Instructional network 2. Open computer labs 3. Web/intranet enabled applications
Catonsville	1. Paying wages comparable to the industry to recruit, keep, and reward technical staffs 2. Implementing new administrative systems to support year 2000 processing 3. Technology refresh program/budgeting/funding to replace PCs on a regular basis as they become obsolete
Essex	1. Support staff 2. Infrastructure 3. Training
Montgomery	1. Update hardware to operate state-of-the-market academic software 2. Additional student open labs and electronic access 3. Replace current administrative systems
Prince George's	1. Support staff 2. Connectivity in outer parts of campus 3. User training

The most frequently mentioned campus priority was the need for immediate and ongoing equipment upgrading. Eleven of the colleges specified the need to upgrade existing inventory to current market standards, and/or the need to maintain equipment currency on an ongoing basis. Faculty and staff training was the second most mentioned priority. The need for more technical support staff was third, with seven colleges asserting this as a top priority.

College Technology Priorities Mentioned by Three or More Colleges	
Priority	Number of Colleges
Equipment upgrades, immediate and ongoing	11
Faculty and staff training	8
Technical support staffing	7
Distance learning	6
Internet/World Wide Web/intranet	5
Additional student computer laboratories	4
Multimedia classrooms	3
New administrative systems	3

A third of the colleges had distance learning as one of their top three priorities. Five of the six specifying distance learning were small colleges. Five colleges placed a priority on developing Internet and intranet capabilities. Four colleges specified the need for more student computer laboratories. Multimedia classrooms and new administrative systems were priorities of three colleges each.

Conclusions

This survey was based on the technology plans of the 18 individual community colleges in Maryland. Each college determined its own needs, independently of the others, and these campus needs were then aggregated to identify statewide needs. While cross-college discussions have taken place, among statewide affinity groups for example, the technology needs data presented here reflect a summation of the plans and philosophies of the 18 colleges. This methodology can be contrasted to an alternative approach, where technology standards based on college missions, geographic locations, enrollment, and other factors might be applied uniformly across institutions. For example, a standards approach might assert that all small colleges should have four fiber-optic interactive video classrooms. The survey of individual college plans reported here allows for differences in philosophy and goals, even among colleges similar in size and situation. Wor-Wic Community College anticipates having a total of eight distance learning classrooms; Cecil Community College plans on none, instead opting for Internet instruction to meet distance learning needs.

This survey has documented extensive and widespread needs for technology enhancements at all 18 Maryland community colleges. While the need for improvements to campus infrastructures and administrative systems varied by college, all 18 faced the challenges of maintaining equipment currency, training faculty and staff in the new technologies, constructing or retrofitting classrooms and laboratories, and employing adequate technical support staff. The magnitude of the statewide challenge is suggested by the following minimum requirements to meet college plans for the next five years:

- Maryland community colleges will need to purchase over 23,000 personal computers over the next five years. This number includes the need to replace currently obsolete computers, purchase additional computers to meet anticipated enrollment and program growth, and replace today's market-current machines which will be out of date in the year 2003.

- Over 1,000 full-time faculty will need to be trained in multimedia instructional techniques over the next five years.

- To fully exploit the potential of distance learning, 800 faculty will need training in interactive video teaching techniques.

- During the next five years, at least 400 classrooms will need to be equipped for multimedia instruction, 50 for interactive video distance learning, and 250 with satellite downlink connections.

- The colleges will have to employ an additional 200 technical support staff to install and maintain the above technologies.

These figures have been rounded down from the aggregate survey findings to emphasize that they are estimates based on college plans, and to provide a conservative view on a challenge of great magnitude.

Maryland's community colleges are committed to providing state-of-the-market education and training to meet the needs of Maryland's employers and workers. The colleges have the plans and talent to do this. They need reliable and ongoing funding support to acquire and maintain the equipment, train the faculty and staff, and hire the technical support necessary to fulfill their mission.

Appendices

A Proposal for Enhancing Information Technology in Maryland Community Colleges

Survey cover letter

Survey Guidelines for Completion

Survey Questionnaire

Responses from Small Colleges

Responses from Mid-size Colleges

Responses from Large Colleges

A PROPOSAL FOR

ENHANCING INFORMATION TECHNOLOGY

IN MARYLAND COMMUNITY COLLEGES

FROM

THE MARYLAND COMMUNITY COLLEGE FACILITIES
PLANNERS COUNCIL

TO

THE MARYLAND COUNCIL OF COMMUNITY COLLEGE
PRESIDENTS

OCTOBER 7, 1996

ENHANCING INFORMATION TECHNOLOGY

IN MARYLAND COMMUNITY COLLEGES

Introduction

Maryland Community Colleges face a major challenge posed by the rapid pace of change accompanying the emerging Information Age. Every five years, or less, a major new development cycle begins in one of the many new technologies associated with communicating information. Maintaining current state-of-the-art technology is crucial to the success of community colleges, especially as they broaden services to Maryland's business and industry community. Furthermore, to achieve currency with the state of the art in many of the newer information age technologies, Maryland's community colleges need to make substantial expenditures to upgrade campus telecommunications infrastructure and equipment, classroom and laboratory instructional technology, and training for faculty and staff in the use of these technologies.

To successfully meet this challenge, Maryland Community Colleges must have a reliable source of funding that will help the colleges catch up in those areas where they lag technologically and that will be dedicated to funding the enormous, reoccurring investment costs associated with keeping the technology up to date. They must also have available uniform technical standards that will assure technology purchased and installed will perform reliably, have extensive life cycle value, and will provide smooth interoperability of networks on campus, between campus networks, and among statewide, national, and international area

networks. And they must also be able to utilize information technology to integrate the delivery of educational services statewide, which will require that community colleges become more interconnected and interdependent.

Enhancements to current technology that are needed by Maryland's Community Colleges to offer competitive, state of the art instruction and services to Maryland's citizens, businesses, and industries include:

- Statewide Distance Learning / Video Teleconferencing
- Statewide Data Exchange
- Electronic Classrooms / Multimedia Instruction
- Campus Telecommunication Infrastructure and Switching Equipment, and
- Broad-band Internet Access

A recent Maryland Higher Education Commission study of distance learning performed by Hezel Associates illustrates the extent of the problem we face. Maryland lags behind Minnesota, Texas, Indiana, Georgia, and Virginia in several key aspects of transforming its institutions of higher education to become competitive in the information age. Governor Glendenning has declared one of his administration's chief goals for higher education to be the establishment of Maryland as a national leader in information technology. For Maryland's Community Colleges to become full partners in the achievement of this goal, a major new innovative approach is needed to enhancing and periodically renewing information technology for all campuses statewide.

Technology Enhancements Needed

Presently, the 18 community colleges and the Maryland Association of Community Colleges (MACC) have no data network for reporting and

exchanging information. They are not connected through single or multiple distance learning/video teleconferencing networks. They have no established organization for sharing exemplary projects or developing and conducting joint staff development and training programs. Nor do they have established standards for campus infrastructure development that would facilitate statewide interoperability of campus data and video systems. ***Until the campuses are linked through such networks, community colleges will be at a severe disadvantage in becoming a key resource for attracting business and industry and a significant partner with the State in making Maryland a technology leader.***

Current Funding Limitations

Presently, neither operating nor capital budgets provide adequate funds to cover investments of the scope required. Even with the 1996 community college formula funding enhancements, the colleges' operating budgets will not be able to absorb costs of the magnitude required both to provide the additional investments needed to become fully active players in the Information Age ball game and to periodically renew that investment to maintain state of the art competitiveness.

Large Initial Investment Cost - A single electronic classroom equipped to permit use of multimedia software currently available from major book publishing firms can cost in excess of $100,000. A single compressed video teleconferencing lab costs from $50,000 to $130,000, without considering the infrastructure improvements to inter- and intra-building cabling that are required to deliver a telecommunicated signal to the lab.

New Operating and Maintenance Costs - Once installed, information age technology poses a substantial new burden on the operating budget. Line costs, toll charges, LATA fees, maintenance contracts, repair and replacement parts, and the costs of technicians to maintain the new

systems will all consume a significant portion of the new State funding provided in the 1996 changes to the funding formula.

High Cyclical Renewal Costs - In addition to catching up and maintaining this new technology, the colleges must make significant recurring investments to renew the technology in order to sustain currency with the state of the art. New, expanded investments in technology add to the scope of these cyclical renewal costs. Every five years or less, desktop computing equipment must be upgraded or replaced to provide our students with the training on up-to-date equipment required by our business and industry customers. ***These "new technology" cyclical renewal expenses, occurring in a period of steady or declining enrollments, added to the computer lab upgrades we have been struggling to fund in recent years, place a burden on operating budgets of a magnitude never before experienced by community colleges.***

Technicians and Staff Development - Two additional significant costs are also growing: those required to keep faculty and staff up to date in the use of these new technologies, and requirements for additional employees to operate and manage new systems. Community colleges will not become transformed to information age learning institutions without making a substantial additional investment in faculty and staff professional development and training. Information age technologies require network administrators, video technicians, lab aides and technicians with specialized knowledge and skills. These new training and staffing costs will test the budget resources of the wealthiest institutions. College operating budgets are already struggling to maintain existing computer labs in a current state of the technology. ***Without special funding help to cover some of these costs, community colleges will not make substantial progress in becoming front line institutions serving Maryland's business and industry community.***

Capital Funds and Grants - Capital construction projects and grant funding have offered the chief vehicles through which community colleges have made progress in transforming their campuses to information-age readiness. But these fund sources each have serious limitations. Soft money is available only sporadically, often is targeted on very specific programmatic goals, and tends to continue for only a few years. The nature of the new information technology is pervasive, interconnected, and systemic. ***Funding support for major technology enhancements needs to be reliable, applicable to campus-wide systems, timely, and ongoing***. Capital funds have proven to be the source that best meets these funding criteria, but the Maryland capital budget process for community colleges is not presently structured to address pervasive, interconnected, systemic needs. Further, the capital funding process is fragmented into eighteen separate college requests and into many more individual project requests. The process also focuses on new construction of buildings and largely overlooks the transformational role that information technology will play in re-defining how colleges deliver learning and interact with students. Specifically, interpretation of guidelines for eligible capital purchases excludes many information technology system components, unless they are obtained in the construction of a new building.

Proposal for Enhancing Information Technology

With a well-formulated plan, clear goals, and an effective strategy, Maryland Community Colleges can take a giant step forward in becoming Maryland's prime educational link to local businesses and industries across the state by significantly enhancing information technology that connects every campus. ***The key technology issues involve providing all Maryland community colleges with sufficient bandwidth, integration, and interoperability to permit effective statewide linkage of MACC and the community colleges***. To accomplish this broad goal, Community Colleges must:

- establish a clear vision of what community colleges intend to accomplish with such enhancements to existing technology,

- develop a detailed plan based on a thorough understanding of the existing state of "technology readiness" of the Community Colleges, both individually and collectively,

- identify a strategy for obtaining State Executive and Legislative funding support for technology enhancement that accounts for both capital and operating expenses,

- verify with State Bond Counsel that recommended changes in capital equipment eligibility meet tax law requirements,

- assure that the enhancement plan preserves college flexibility and autonomy for on-campus development of technology and achieves functional interoperability among community colleges statewide, and

- address the need for reliability in funding the cyclical renewal costs of information technology systems with commitments to set aside college funds and technology fee revenue for this purpose, as well as requesting the State to establish special technology-enhancement funds.

In order to devote the time and effort needed to develop an effective plan and strategy, the Colleges should limit immediate activities to the following:

- Technology Plan - Funds should be requested in FY 1998 from the Information Technology Board (or other non-capital State sources) for the development of a Statewide Technology Plan for Community Colleges, including an assessment of technology

needs at each of the colleges. A comprehensive assessment of technology needs at each college should be undertaken with the assistance of a top notch telecommunications consultant. To guide future statewide funding requests, a Technology Plan should be developed that addresses the issues of linking the colleges in a functional network (or networks) and establishes standards for connectivity and interoperability.

- Technology Affinity Group - MCCCP should establish a new affinity group to address issues associated with the development of a statewide technology network. This Technology Council could comprise members of existing affinity groups, including Data Processing Directors, Distance Learning LATA Advisory Groups, as well as Academic Deans and Facility Planners. The chief objective of such a group would be to develop a clear vision for statewide information technology use, sharing information about exemplary programs and activities, and planning joint staff development and training programs.

- Capital Eligible Equipment - Although there is widespread agreement that the definitions of capital eligible purchases should be updated in a manner that acknowledges the capital nature of major information technology system investments, time constraints prohibit tackling this issue now. Investigation of the tax and legal issues involved is needed before a credible, detailed proposal can be prepared. MCCCP should assign to the Facilities Planners Council the task of researching this issue and developing a viable recommendation for updating the definition of capital-eligible equipment that will meet State Bond Council requirements and Department of Budget and Management approval.

- Funding Strategy - A strategy for securing State operating and capital funding to carry out the Technology Plan should be developed jointly by Kay Bienen and MACC, MCCCP, Facilities Planners, and Business Officers for the FY 1998-1999 budget cycle. This strategy should include some costly technology enhancements that cannot be purchased with bond funds. These general fund revenues might be allocated to the colleges as a special set aside within the capital budget, or through a grant program similar to the $5 million instructional equipment allocation made in FY 1996. However, development of a successful strategy (one that does not result in merely supplanting formula funding) depends upon clear goals and a clear understanding of changes possible to the definition of capital eligible equipment. There is insufficient time to develop and achieve agreement on such a strategy for the current funding cycle, but it should become a prime goal for FY 1999.

Conclusion

Community Colleges have an opportunity to achieve a significant enhancement of their information technology and to play a leadership role in helping Governor Glendenning realize one of his administration's chief goals for higher education: the establishment of Maryland as a national leader in information technology. The first step in seizing this opportunity is agreeing to act. By acting promptly, together, with conviction, we can transform Maryland Community Colleges collectively into the forefront of learning institutions in the Information Age.

jhl/fund2a.wpd

MARYLAND COMMUNITY COLLEGES
TECHNOLOGY COUNCIL

June 13, 1997

Dr. Donald L. Alexander, President
Allegany Community College
P.O. Box 1695
Willowbrook Road
Cumberland, MD 21502

Re: Technology Needs Assessment Survey

Dear Dr. Alexander:

The technology survey that has been developed by the Technology Council is enclosed. As you know, this survey is a critically important step in our efforts to enhance funding for technology in Maryland's Community Colleges. ***Your assistance is needed*** to assure that this survey is given prompt, serious attention by the appropriate staff and faculty of Allegany Community College.

The Technology Council has been working hard to accomplish the initial goals of the group. Dr. Joseph Shields, President of Carroll Community College, has attended every meeting of the Technology Council and has been keeping you up-to-date on the Council's activities at MCCCP meetings.

Please note: the survey must be **completed and returned by July 1, 1997**, to:

Dr. Craig A. Clagett
Director of Institutional Research and Analysis
Prince George's Community College
301 Largo Road
Largo, MD 20774

Guidelines for completing the survey are attached. Contact Craig with questions (telephone: 301-322-0723; e-mail: cc5@pgstumail.pg.cc.md.us).

At the August MCCCP meeting, we will have a report on the survey results available to share with you along with our tentative plans for requesting funding for technology. Copies of these documents are also enclosed for your reference. Thank you for your support of this important initiative.

Sincerely,

Jon H. Larson
Co-Chair

Joseph W. White
Co-Chair

jhl/coverlet/encl.
cc: Kay Bienen
Dr. Fred Walsh

Maryland Community Colleges Technology Council

Technology Needs Assessment Survey

Guidelines for Completion

1. Completion of the survey will likely require more than one person at each college to ensure accurate responses to all sections. Individuals who might be expected to contribute to survey completion include instructional administrators (including continuing education deans), data processing and information systems administrators, facilities planners, physical plant directors, student services deans, business officers, institutional research directors, and persons involved with telecommunications and distance education.

2. It is strongly suggested that one person be designated to coordinate the institution's response, but that an initial meeting be held including the above personnel as appropriate so that the college can identify those persons best able to answer each section of the survey.

3. In answering the questionnaire, include all equipment and services purchased during fiscal year 1997 in "current" totals even if not yet installed or operational.

4. If precise information is unavailable, please provide your **best estimate** for each question. Several survey items, such as the computer inventories and the first seven questions in Section V (Infrastructure), request specific counts. Please make the effort to provide these counts, as they will enable us to compile systemwide totals and percentages.

5. Responses are needed by July 1, 1997. Return the questionnaire even if all items are not completed by that date. Please provide the names of contact people for each section as requested on page 15.

I. Instructional Technology

Instructional Computer Inventory

1. In this section, please report the number of microcomputer or computer workstations used to support instruction. Do not double count; each computer/workstation should be reported in only one row. If a machine or room serves multiple purposes, select the *one category* that fits best. All computers used for instructional purposes should be included. Include all such computers owned or leased by the college, including portables (laptops) and machines at extension or other off-campus locations.

> "Current technology" is defined as a Pentium-133 (or equivalent) or faster processor. Please classify your existing computers in the appropriate column under "computers in use now."

We also want to learn how many *additional* computers your college will need by the year 2003. (Do not include the need for replacing or upgrading existing machines.) The final column is the sum of the preceding three.

Existing and Planned Instructional Computer Inventory				
	Computers in Use Now		Additional	Total
Location and Use of Computers	Less than current technology	Current technology	Computers Needed by Year 2003	Computers Needed in Year 2003
Instructional classrooms/labs including continuing education				
Open computer laboratories and instructional support (student use)				
Library computers for student/visitor use and bibliographic instruction				
Faculty offices, including faculty resource centers				
Placement, testing, and assessment offices and laboratories				
Other computers used for instruction Specify:				
Total instructional computers				

Faculty Technological Competencies and Training Needs

2. Please estimate below the number of full-time instructional faculty and part-time, adjunct faculty (including continuing education faculty) currently capable of using multimedia and distance learning technologies. In a multimedia classroom, a faculty member has access to external telecommunications networks (Internet/World Wide Web) and is able to present mediated information from the network or originating in the room (e.g., from CD-ROMs). In a distance learning teleclassroom, a faculty member is able to provide interactive instruction to students located at remote sites. A faculty member proficient in both multimedia and distance learning technologies should be reported in both applicable rows of the table below.

In the next column, estimate the number of additional full-time and adjunct faculty that the college desires to be trained in using multimedia and distance learning technologies. The final column is the sum of the first two and represents the total number of faculty in each category the college anticipates needing in the year 2003.

Full-time and Adjunct Faculty Proficiency in Instructional Technologies			
	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Full-time faculty proficient in using multimedia classrooms			
Part-time, adjunct faculty proficient in multimedia			
Full-time faculty proficient in distance learning techniques			
Part-time, adjunct faculty proficient in distance learning			

Electronic Classrooms

3. Please report the number of classrooms that have interactive video technology for distance learning, satellite downlink capability, and the number outfitted for multimedia instruction. In a multimedia classroom, an instructor has access to external telecommunications networks (Internet/World Wide Web) and is able to present mediated information from the network or originating in the room (e.g., from CD-ROMs).

Existing and Planned Electronic Classrooms			
Classroom Capabilities	Classrooms in Use Now	Additional Classrooms Needed by 2003	Total Classrooms Needed in Year 2003
Interactive fiber-optic (e.g. Bell Atlantic) distance learning			
Interactive digital compressed video distance learning systems			
Satellite downlink classroom			
Classrooms outfitted for multimedia instruction			

II. Intercampus Networks and Distance Learning Initiatives

4. Please check all that apply to your campus now, and those that you anticipate by the year 2003 (check both columns if a current capability will also be used in 2003):

	Now	Anticipated Year 2003
Maryland Interactive Distance Learning Network	☐	☐
Interactive Compressed Video Network	☐	☐
ISDN	☐	☐
Other interactive video distance learning networks	☐	☐
Instruction via the Internet	☐	☐
Instruction via college intranet	☐	☐
Instruction using bulletin board service	☐	☐
Audio instruction via automated phone system	☐	☐
Satellite/microwave downlink capability	☐	☐
Satellite/microwave uplink capability	☐	☐
College cable television broadcast channel	☐	☐
Video-based courses	☐	☐

5. Please provide estimates of your college's *annual* expenditures for distance learning network fees. Assume today's fee rates and structures in estimating your year 2003 expenditures.

Estimated Annual Expenditures for Distance Learning Network Fees		
	Estimated 1997 Fiscal Year	Projected Year 2003
Interactive video fees (including Interlata and Intralata fees, line charges)	$	$
Satellite/microwave uplink and downlink charges	$	$

III. Technology Support

6. In the table below, report the number of technical support staff *currently responsible* for installing and maintaining instructional and administrative technologies, including classroom and laboratory computers, distance learning equipment, and administrative/staff personal computer networks. An individual should be counted only once. Count part-time technical support staff as 0.5 FTE (two part-timers equal to one full-timer) to calculate a full-time-equivalent total. Include paid student workers.

In the second column, estimate the *additional* full-time-equivalent technical staff your college will need to support technology in the year 2003. The final column is the sum of the first two.

Technical Support Staff			
Employee Category	Current Number	Additional Needed by Year 2003	Total Needed in Year 2003
Instructional technology/PC technical support staff (FTE)			
Distance learning technology technical support staff (FTE)			
Administrative PCs/networks technical support staff (FTE)			
Total support staff (FTE)			

7. Does your college have a current Technology Master Plan (prepared since 1995)?

☐ Yes
☐ Partial plan
☐ No (skip to question 11)

8. Please indicate if your technology plan incorporates accepted *standards* for each of the following (check box if included in plan).

- ☐ fiber and copper cabling
- ☐ equipment
- ☐ communication protocols
- ☐ user training

9. Please indicate if your technology plan includes each of the following elements of your technology infrastructure (check box if included in plan):

- ☐ telephone network
- ☐ video network
- ☐ computer/data network
- ☐ Internet/intranet network
- ☐ energy management
- ☐ fire protection
- ☐ security
- ☐ building conduits for fiber and copper wiring
- ☐ fiber/cable management documentation

10. Please indicate if your technology plan includes each of the following components:

- ☐ replacement schedule for PCs and other equipment (e.g., every 3 years)
- ☐ retrofit of existing classrooms for multimedia instruction
- ☐ interactive video/distance learning
- ☐ Internet and WWW technology
- ☐ faculty and staff training needs
- ☐ library/learning resource systems
- ☐ alternative funding proposals (leases, trade-ins, private gifts, etc.)

11. Of all your campus technology needs, what are your college's top three priorities?

1.

2.

3.

IV. Administrative Systems

12. To what extent are administrative systems (human resources, payroll, financial, student, facilities, and foundation systems) integrated?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

13. To what extent do administrative systems run on client/server platforms (without mainframes or proprietary mid-range computers)?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

14. To what extent are administrative systems maintained on a relational database system?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

15. To what extent are administrative systems Year 2000 compliant?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

16. To what extent are administrative systems Web-enabled or accessible via a Web browser?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

17. What administrative functions can be performed through the Web?

- ☐ Admissions application
- ☐ Course schedule lookup
- ☐ Registration
- ☐ Drop/add
- ☐ Financial aid application
- ☐ Grade lookup
- ☐ Grade posting
- ☐ Payments

18. Please check all electronic interfaces currently in use whereby data are transferred electronically between college administrative systems and the office or agency:

- ☐ Employee time and attendance recording
- ☐ Federal Reserve Payroll Direct Deposit
- ☐ Payroll tax payments
- ☐ Maryland State Pension System contributions
- ☐ 403b retirement plan contributions
- ☐ Purchase requisition recording by requesting department
- ☐ Purchase order distribution to vendors via EDI technology
- ☐ Vendor payments via EDI technology
- ☐ Student grade recording by instructors
- ☐ Student transcript distribution to other institutions

19. Who is your major administrative systems vendor?

- ☐ Datatel
- ☐ SCT
- ☐ Computing Options
- ☐ Other (specify): _____

20. Does your college need to replace current administrative systems? If yes, by what date do you expect to complete the conversion?

- ☐ Systems do not need replacing
- ☐ Currently replacing systems, expect completion by: _____
- ☐ Not underway, but expect to replace systems by: _____

21. In the following table, please report the number of microcomputers or computer workstations used for non-instructional administrative and staff use. Include portables (laptops) and machines used at extension or other off-campus locations.

> "Current technology" is defined as a Pentium-133 (or equivalent) or faster processor. Please classify your existing computers in the appropriate column under "computers in use now."

We also want to learn how many *additional* administrative/staff PCs your college will need by the year 2003. (Do not include the need for replacing or upgrading existing machines.) The final column is the sum of the preceding three.

Existing and Planned Administrative/Staff Computer Inventory				
	Computers in Use Now		Additional	Total
	Less than current technology	Current technology	Computers Needed by Year 2003	Computers Needed in Year 2003
Total administrative/staff PCs				

22. What percentage of existing administrative/staff PCs are running Windows 95?

- ☐ 95 - 100%
- ☐ Half or more but not all
- ☐ Some but less than half
- ☐ None

V. Infrastructure

Effective use of technology requires an appropriate campus infrastructure. The first seven questions ask for proportions or percentages. If you can, please provide the specific numbers requested on the right. Otherwise, check the box on the left that best describes your situation.

Data Connectivity

23. What proportion of campus buildings are connected to a fiber optic backbone network?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Number buildings connected:_____
|
| Total campus buildings:_____

24. What proportion of campus buildings have category 5 UTP cabling to student labs, faculty and administrative offices?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Buildings with 5 UTP cabling:_____
|
| Total lab/office buildings:_____

25. What proportion of your student laboratories are connected to the Internet via the network?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Labs connected to Internet:_____
|
| Total student laboratories:_____

26. What proportion of classrooms (not computer laboratories) are wired to provide the instructor with access to a voice/data/video link to the campus backbone?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Classrooms with link:_____
|
| Total classrooms:_____

27. What proportion of administrative offices are connected to the Internet?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Offices connected to Internet:_____
|
| Total administrative offices:_____

28. What proportion of faculty offices are connected to the Internet?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Offices connected to Internet:_____
|
| Total faculty offices:_____

29. What proportion of faculty offices are connected to administrative systems?

☐ 95 - 100%
☐ Half or more but not all
☐ Some but less than half
☐ None

| Faculty connected:_____
|
| Total faculty offices:_____

30. Does your infrastructure provide the ability to link any workstation to any appropriate campus computing resource?

☐ Yes
☐ No

31. Do you support a wide area data communications network linking all the college's remote locations to the central campus?

☐ Yes
☐ No

32. Who can dial in to connect to on-campus computing resources?

☐ Selected staff only
☐ All faculty and staff
☐ Students

33. Does the college use a network management system to control and manage the network, respond to outages, and monitor traffic bottlenecks?

☐ Yes
☐ No

34. What local area network bandwidths are currently in use?

☐ 10 MB Ethernet
☐ 100 MB Ethernet
☐ 4 MB Token Ring
☐ 16 MB Token Ring
☐ ATM
☐ FDDI
☐ Mainframe
☐ Other

Telephone/Voice

35. Year your telephone PBX was installed/upgraded: _____

36. Was the voice cabling supporting the PBX replaced when the PBX was installed/upgraded?

☐ Yes
☐ Partially
☐ No

37. Does your existing telephone system have sufficient expansion capability to meet the needs of new buildings and additional users anticipated by the year 2003?

☐ Yes
☐ No

38. Can your existing telephone system support changing PBX technologies such as processing data and video, T1 or PRI-based links to service providers, and system-wide faxing?

☐ Yes
☐ No

39. Do you have plans to replace your telephone PBX?

☐ Yes (When is this anticipated: _____)
☐ No

40. Can students register for courses using a touch tone telephone?

☐ Yes
☐ No

41. What other functions can be performed through the telephone network?

☐ E-mail
☐ Internet
☐ Add/drop
☐ Bill payment
☐ Other (specify): _____

Building Automation/Energy Management/Fire Detection/Security

42. Do you have a network supporting campus building automation/energy management?

☐ Yes, adequate for next five years
☐ Yes, but in need of major improvement or replacement
☐ No

43. Do you have a fire detection network?

☐ Yes, adequate for next five years
☐ Yes, but in need of major improvement or replacement
☐ No

44. Do you have a campus/building security network?

☐ Yes, adequate for next five years
☐ Yes, but in need of major improvement or replacement
☐ No

Conduit Support

45. Please rate the condition of your existing conduit system:

☐ Adequate for next five years/only minor improvement needed
☐ In need of major improvement or replacement

46. Does your conduit system provide redundant pathing to buildings?

☐ Yes, to all buildings
☐ Yes, to some but not all buildings
☐ No

47. Is your existing conduit system capable of supporting new building construction anticipated by the year 2003?

☐ Yes
☐ No

Please identify a person to contact for each section should questions arise regarding your responses:

	Name	Phone
Instructional Technology:	_____	_____
E-mail:	_____	
Distance Learning:	_____	_____
E-mail:	_____	
Technology Support:	_____	_____
E-mail:	_____	
Administrative Systems:	_____	_____
E-mail:	_____	
Infrastructure:	_____	_____
E-mail:	_____	

Thank you for completing this survey. Please return it to:

Craig A. Clagett
Office of Institutional Research and Analysis
Prince George's Community College
301 Largo Road K-231
Largo, Maryland 20774-2199

I. Instructional Technology
Responses from Small Colleges (‹1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
1	Old PCs: classrooms	280	38	93	82	70	59
1	Old PCs: open computer labs	24	0	33	84	30	103
1	Old PCs: library	20	0	4	16	12	0
1	Old PCs: faculty offices	100	38	21	36	20	29
1	Old PCs: assessment	10	28	0	13	5	2
1	Old PCs: other	4	0	0	4	0	0
1	Total existing old PCs	438	104	151	235	137	193
1	New PCs: classrooms	0	243	17	0	30	59
1	New PCs: open computer labs	2	0	0	0	5	2
1	New PCs: library	0	45	0	0	8	21
1	New PCs: faculty offices	0	17	5	13	5	0
1	New PCs: assessment	0	3	0	0	1	0
1	New PCs: other	1	3	0	0	0	0
1	Total existing current PCs	3	311	22	13	49	82
1	Add PCs: classrooms	100	30	150	30	80	90
1	Add PCs: open computer labs	50	0	92	20	20	60
1	Add PCs: library	20	6	6	16	15	10
1	Add PCs: faculty offices	10	12	20	11	20	16
1	Add PCs: assessment	30	4	25	0	10	20
1	Add PCs: other	20	45	0	10	0	0
1	Additional PCs needed by 2003	230	97	293	87	145	196
1	Total 2003: classrooms	380	311	260	112	180	208
1	Total 2003: open computer labs	76	0	125	104	55	165
1	Total 2003: library	40	51	10	32	35	31
1	Total 2003: faculty offices	110	67	46	60	45	45
1	Total 2003: assessment	40	35	25	13	16	22
1	Total 2003: other	25	48	0	14	0	0
1	Total instructional PCs in 2003	671	512	466	335	331	471

I. Instructional Technology

Responses from Small Colleges (‹1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
2	FT faculty: multimedia now	35	5	5	2	3	18
2	Adjunct faculty: multimedia now	13	3	5	1	3	8
2	FT faculty: distance learning now	15	4	0	25	3	3
2	Adjunct faculty: distance lrn now	2	3	0	5	2	4
2	FT faculty: multimedia additional	65	45	15	45	2	30
2	Adjunct fac: multimedia additional	20	40	15	45	3	80
2	FT faculty: distance lrn additional	30	20	10	35	4	45
2	Adjunct faculty: dist lrn additional	10	15	5	35	8	84
2	Total FT fac: multimedia 2003	100	50	20	47	5	48
2	Total adjunct fac: multimedia 2003	33	43	20	46	6	88
2	Total FT faculty: distance lrn 2003	45	24	10	60	7	48
2	Total adjunct fac: distance lrn 2003	12	18	5	40	10	88
3	Fiber-optic distance classrooms now	1	1	0	2	1	0
3	Digital compressed classrooms now	3	1	0	0	1	0
3	Satellite downlink classrooms now	1	2	0	6	4	0
3	Multimedia classrooms now	1	3	4	4	5	31
3	Fiber-optic distance classrooms add	1	3	0	2	0	4
3	Digital compressed classrooms add	1	0	0	2	4	4
3	Satellite downlink classrooms add	1	40	6	20	4	55
3	Multimedia classrooms additional	6	39	8	31	1	28
3	Total fiber-optic classrooms 2003	2	4	0	4	1	4
3	Total digital compressed 2003	4	1	0	2	5	4
3	Total satellite downlink 2003	2	42	6	26	8	55
3	Total multimedia classrooms 2003	7	42	12	35	6	59

II. Distance Learning

Responses from Small Colleges (‹1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
4	MIDLN: now	Y	Y	N	Y	Y	N
4	Interactive compressed video: now	Y	Y	N	N	Y	N
4	ISDN: now	N	Y	N	N	Y	Y
4	Other interactive video: now	N	N	N	N	N	Y
4	Internet instruction: now	N	Y	Y	Y	N	Y
4	Intranet instruction: now	N	Y	N	N	N	N
4	BBS instruction: now	N	N	N	N	Y	Y
4	Audio/phone instruction: now	N	N	N	N	N	N
4	Satellite downlink: now	N	Y	Y	Y	Y	N
4	Satellite uplink: now	N	N	N	N	N	N
4	College cable channel: now	Y	Y	N	N	Y	N
4	Video-based courses: now	Y	Y	N	Y	Y	N
4	MIDLN: 2003	Y	Y	N	Y	Y	Y
4	Interactive compressed video: 2003	Y	Y	N	Y	Y	Y
4	ISDN: 2003	Y	Y	N	Y	Y	Y
4	Other interactive video: 2003	Y	Y	Y	Y	N	Y
4	Internet instruction: 2003	Y	Y	Y	Y	Y	Y
4	Intranet instruction: 2003	Y	Y	Y	N	Y	Y
4	BBS instruction: 2003	Y	N	N	N	Y	Y
4	Audio/phone instruction: 2003	Y	N	N	N	N	Y
4	Satellite downlink: 2003	Y	Y	Y	Y	Y	Y
4	Satellite uplink: 2003	Y	N	Y	N	N	Y
4	College cable channel: 2003	Y	Y	Y	N	Y	Y
4	Video-based courses: 2003	Y	Y	Y	Y	Y	Y
5	Interactive video fees: FY97	77K	30K	0	67K	18K	0
5	Satellite charges: FY97	0	8K	0	11K	1K	0
5	Interactive video fees: 2003	130K	70K	10K	82K	25K	?
5	Satellite charges: 2003	25K	10K	5K	20K	2K	?

III. Technology Support
Responses from Small Colleges (<1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
6	Current instructional PC staff	5.0	4.0	3.5	4.0	1.5	2.0
6	Current distance learning staff	7.0	0.5	0.0	1.5	1.5	0.0
6	Current administrative PC staff	3.0	6.0	2.0	3.5	2.5	1.0
6	Total current tech support staff	15.0	10.5	5.5	9.0	5.5	3.0
6	Additional inst. PC staff needed	2.0	4.0	3.5	3.0	1.0	3.0
6	Add. distance learn. staff needed	3.0	2.0	1.0	2.0	1.5	1.0
6	Add. admin. PC staff needed	1.0	3.0	1.0	5.0	0.5	1.0
6	Total additional staff needed	6.0	9.0	5.5	10.0	3.0	5.0
6	Total 2003 instr. PC staff	7.0	8.0	7.0	7.0	2.5	5.0
6	Total 2003 dist. learning staff	10.0	2.5	1.0	3.5	3.0	1.0
6	Total 2003 admin. PC staff	4.0	9.0	3.0	8.5	3.0	2.0
6	Total 2003 tech support staff	21.0	19.5	11.0	19.0	8.5	8.0
7	Have Technology Master Plan?	partial	Y	partial	Y	partial	partial
8	Fiber/copper cabling standards	Y	Y	Y	Y	Y	Y
8	Equipment standards	Y	Y	Y	N	Y	Y
8	Communication protocol standards	Y	Y	Y	N	Y	Y
8	User training standards	Y	Y	Y	N	N	Y
9	Plan: telephone network	Y	Y	Y	Y	Y	Y
9	Plan: video network	Y	Y	N	Y	Y	Y
9	Plan: computer/data network	Y	Y	Y	Y	Y	Y
9	Plan: Internet/intranet network	Y	Y	Y	Y	Y	Y
9	Plan: energy management	Y	N	N	Y	N	Y
9	Plan: fire protection	Y	N	N	Y	N	Y
9	Plan: security	N	N	N	Y	Y	Y
9	Plan: building conduit	N	N	Y	Y	Y	Y
9	Plan: fiber/cable documentation	N	N	N	Y	N	N
10	Equipment replacement schedule	Y	Y	Y	Y	N	Y
10	Multimedia retrofit of classrooms	Y	Y	N	Y	Y	Y
10	Plan: interactive video	Y	Y	N	Y	Y	Y
10	Plan: Internet/WWW	Y	Y	Y	Y	Y	Y

#	Question	All	Car	Cecil	Ches	Gar	W-W
10	Plan: faculty/staff training	Y	Y	Y	Y	Y	Y
10	Plan: library systems	Y	Y	Y	Y	Y	Y
10	Plan: alternative funding	Y	Y	N	N	N	N

IV. Administrative Systems
Responses from Small Colleges (<1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
12	Systems integration	½	all	all	all	all	½
13	On client-server platforms	some	all	no	no	some	some
14	On relational database	½	all	all	all	½	no
15	Year 2000 compliant	½	all	some	all	no	½
16	Web-enabled/Web accessible	some	some	no	no	no	no
17	Web admissions application	N	Y	N	N	N	N
17	Web course schedule lookup	Y	Y	N	Y	N	N
17	Web registration	N	Y	N	N	N	N
17	Web course drop/add processing	N	Y	N	N	N	N
17	Web financial aid application	N	Y	N	N	N	N
17	Web grade lookup	N	Y	N	N	N	N
17	Web grade posting	N	Y	N	N	N	N
17	Web payments	N	Y	N	N	N	N
18	EI time/attendance recording	N	N	N	N	N	N
18	EI payroll direct deposit	Y	Y	N	N	Y	N
18	EI payroll tax payments	Y	Y	N	N	N	Y
18	EI Pension System contributions	Y	Y	N	N	N	N
18	EI 403b retirement contributions	Y	Y	N	N	N	N
18	EI purchase requisition recording	Y	N	N	N	N	N
18	EI purchase orders to vendors	N	N	N	N	N	N
18	EI vendor payments	N	N	N	N	N	N
18	EI student grade recording	N	N	N	N	N	N
18	EI student transcript distribution	Y	Y	Y	N	N	N
19	Administrative systems vendor	campus	Dat	CMDS	Dat	CO	BiTec
20	Systems replacement	Sp98	N	12/98	N	N	N
21	Existing admin PCs: Old technology	250	56	66	78	15	46
21	Existing admin PCs: Pentium 133+	20	53	14	16	35	21
21	Additional PCs needed by 2003	25	11	10	30	12	10

#	Question	All	Car	Cecil	Ches	Gar	W-W
21	Total admin PCs needed in 2003	295	120	90	124	62	77
22	Administrative PCs w/Windows 95	some	½	all	none	½	some

V. Infrastructure

Responses from Small Colleges (<1,700 FTEs)

#	Question	All	Car	Cecil	Ches	Gar	W-W
23	Buildings connected	½	some	all	all	none	all
24	Buildings w/5 UTP cabling	½	½	all	all	½	all
25	Labs w/Internet	all	all	½	all	½	some
26	Classrooms w/link	some	all	none	all	some	all
27	Administrators w/Internet	all	all	all	some	all	all
28	Faculty w/Internet	all	all	all	some	all	all
29	Faculty w/admin systems	all	none	½	all	all	all
30	Any station ↔ resource	Y	Y	Y	Y	Y	Y
31	Wide area network	Y	Y	Y	N	Y	Y
32	Dial in: selected staff	Y	Y	Y	Y	Y	Y
32	Dial in: faculty + staff	N	N	Y	N	N	N
32	Dial in: students	N	N	N	N	N	N
33	Network management system	N	N	N	Y	Y	Y
34	LAN band: 10 MB Ethernet	Y	Y	Y	Y	Y	Y
34	LAN band: 100 MB Ethernet	N	N	N	Y	N	N
34	LAN band: 4 MB Token Ring	N	N	N	Y	N	N
34	LAN band: 16 MB Token Ring	N	N	Y	N	N	N
34	LAN band: ATM	N	N	N	Y	N	N
34	LAN band: FDDI	N	N	N	Y	N	N
34	LAN band: mainframe	Y	N	N	N	N	N
35	Year PBX installed	1997	1997	1997	1992	1991	1994
36	Voice cable replaced	Y	part	N	N	N	Y
37	Phone system capable	Y	Y	Y	N	N	Y
38	Support PBX features	Y	Y	Y	N	N	Y
39	Plan to replace PBX	N	N	N	Y	Y	N
40	Touch tone phone registration	Y	N	N	N	N	N
41	Phone network: E-mail	N	N	N	N	N	N
41	Phone network: Internet	N	N	N	N	N	N

#	Question	All	Car	Cecil	Ches	Gar	W-W
41	Phone network: add/drop	N	N	N	N	N	N
41	Phone network: bill payment	N	N	N	N	N	N
41	Phone network: other	Y	N	N	Y	N	N
42	Energy management network	Y	Y	N	Y -	N	Y
43	Fire detection network	Y	Y	Y	N	N	Y
44	Security network	N	Y	Y	N	N	Y
45	Adequate conduit	N	Y	Y	Y	Y	Y
46	Redundant pathing	N	some	N	some	N	some
47	Conduit ok to 2003	N	Y	Y	Y	N	Y

I. Instructional Technology
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
1	Old PCs: classrooms	170	177	110	152	143	548
1	Old PCs: open computer labs	30	24	30	72	41	73
1	Old PCs: library	20	15	20	7	10	0
1	Old PCs: faculty offices	100	35	65	93	52	70
1	Old PCs: assessment	4	16	40	8	0	23
1	Old PCs: other	20	0	0	0	2	15
1	Total existing old PCs	344	267	265	332	248	729
1	New PCs: classrooms	86	40	70	32	87	242
1	New PCs: open computer labs	30	0	0	0	30	5
1	New PCs: library	9	0	0	0	13	20
1	New PCs: faculty offices	4	5	5	16	28	30
1	New PCs: assessment	0	0	0	0	8	0
1	New PCs: other	5	0	0	0	7	3
1	Total existing current PCs	134	45	75	48	173	300
1	Add PCs: classrooms	100	133	220	60	100	437
1	Add PCs: open computer labs	60	36	60	80	35	50
1	Add PCs: library	49	15	20	20	200	25
1	Add PCs: faculty offices	20	20	30	30	20	20
1	Add PCs: assessment	25	14	10	50	25	10
1	Add PCs: other	40	5	0	30	50	5
1	Additional PCs needed by 2003	294	223	340	270	430	547
1	Total 2003: classrooms	356	350	400	244	330	1,227
1	Total 2003: open computer labs	120	60	90	152	106	128
1	Total 2003: library	78	30	40	27	223	45
1	Total 2003: faculty offices	124	60	100	139	100	120
1	Total 2003: assessment	29	30	50	58	33	33
1	Total 2003: other	65	5	0	30	59	23
1	Total instructional PCs in 2003	772	535	680	650	851	1,576

I. Instructional Technology
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
2	FT faculty: multimedia now	27	8	3	17	10	60
2	Adjunct faculty: multimedia now	25	5	6	13	15	100
2	FT faculty: distance learning now	25	3	0	5	10	10
2	Adjunct faculty: distance lrn now	10	0	0	8	5	5
2	FT faculty: multimedia additional	66	30	80	90	90	50
2	Adjunct fac: multimedia additional	75	70	150	50	200	200
2	FT faculty: distance lrn additional	30	17	20	50	90	10
2	Adjunct faculty: dist lrn additional	15	40	10	50	100	5
2	Total FT fac: multimedia 2003	93	38	83	107	100	110
2	Total adjunct fac: multimedia 2003	100	75	156	63	215	300
2	Total FT faculty: distance lrn 2003	55	20	20	55	100	20
2	Total adjunct fac: distance lrn 2003	25	40	10	58	105	10
3	Fiber-optic distance classrooms now	3	0	0	1	2	1
3	Digital compressed classrooms now	6	1	0	1	1	0
3	Satellite downlink classrooms now	3	0	1	7	10	5
3	Multimedia classrooms now	15	0	1	65	17	34
3	Fiber-optic distance classrooms add	2	3	0	0	1	1
3	Digital compressed classrooms add	2	2	3	2	0	1
3	Satellite downlink classrooms add	55	2	5	15	30	2
3	Multimedia classrooms additional	20	6	10	20	33	57
3	Total fiber-optic classrooms 2003	5	3	0	1	3	2
3	Total digital compressed 2003	8	3	3	3	1	1
3	Total satellite downlink 2003	58	2	6	22	40	7
3	Total multimedia classrooms 2003	35	6	11	85	50	91

II. Distance Learning
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
4	MIDLN: now	Y	N	N	Y	Y	Y
4	Interactive compressed video: now	Y	Y	N	Y	Y	N
4	ISDN: now	Y	N	Y	Y	Y	N
4	Other interactive video: now	Y	N	N	Y	N	N
4	Internet instruction; now	N	N	N	N	Y	Y
4	Intranet instruction: now	N	N	N	N	N	Y
4	BBS instruction: now	N	N	N	N	N	Y
4	Audio/phone instruction: now	N	N	N	N	Y	N
4	Satellite downlink: now	Y	N	Y	Y	Y	Y
4	Satellite uplink: now	N	N	N	N	N	N
4	College cable channel: now	N	N	Y	Y	Y	Y
4	Video-based courses: now	Y	N	N	Y	Y	Y
4	MIDLN: 2003	Y	Y	N	Y	Y	Y
4	Interactive compressed video: 2003	Y	Y	Y	Y	Y	Y
4	ISDN: 2003	Y	Y	N	Y	Y	N
4	Other interactive video: 2003	Y	Y	Y	Y	Y	N
4	Internet instruction: 2003	Y	Y	Y	Y	Y	Y
4	Intranet instruction: 2003	Y	Y	Y	Y	Y	Y
4	BBS instruction: 2003	Y	Y	Y	Y	N	Y
4	Audio/phone instruction: 2003	N	N	Y	Y	Y	N
4	Satellite downlink: 2003	Y	Y	Y	Y	Y	Y
4	Satellite uplink: 2003	N	Y	Y	Y	Y	N
4	College cable channel: 2003	N	Y	Y	Y	Y	Y
4	Video-based courses: 2003	Y	Y	Y	Y	Y	Y
5	Interactive video fees: FY97	65K	10K	0	36K	36K	26K
5	Satellite charges: FY97	3K	0	4K	0	7K	5K
5	Interactive video fees: 2003	79K	100K	30K	55K	54K	61K
5	Satellite charges: 2003	4K	100K	20K	0	21K	10K

III. Technology Support
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
6	Current instructional PC staff	10.0	1.0	1.8	2.0	5.5	15.0
6	Current distance learning staff	1.0	0.0	0.0	1.0	4.0	2.0
6	Current administrative PC staff	3.0	1.0	2.5	3.0	6.0	8.0
6	Total current tech support staff	14.0	2.0	4.3	6.0	15.5	25.0
6	Additional inst. PC staff needed	4.0	4.0	3.2	3.0	13.0	4.0
6	Add. distance learn. staff needed	3.0	3.0	2.0	2.0	8.0	2.0
6	Add. admin. PC staff needed	3.0	3.0	2.5	1.0	4.0	2.0
6	Total additional staff needed	10.0	10.0	7.7	6.0	25.0	8.0
6	Total 2003 instr. PC staff	14.0	5.0	5.0	5.0	18.5	19.0
6	Total 2003 dist. learning staff	4.0	3.0	2.0	3.0	12.0	4.0
6	Total 2003 admin. PC staff	6.0	4.0	5.0	4.0	10.0	10.0
6	Total 2003 tech support staff	24.0	12.0	12.0	12.0	40.5	33.0
7	Have Technology Master Plan?	partial	partial	Y	N	Y	Y
8	Fiber/copper cabling standards	Y	Y	Y	N	Y	Y
8	Equipment standards	N	Y	Y	N	Y	Y
8	Communication protocol standards	N	Y	Y	N	Y	Y
8	User training standards	N	N	Y	N	Y	Y
9	Plan: telephone network	Y	N	Y	N	Y	Y
9	Plan: video network	Y	N	Y	N	Y	Y
9	Plan: computer/data network	Y	Y	Y	N	Y	Y
9	Plan: Internet/intranet network	N	Y	Y	N	Y	Y
9	Plan: energy management	N	N	Y	N	Y	N
9	Plan: fire protection	N	N	Y	N	Y	N
9	Plan: security	N	N	Y	N	Y	N
9	Plan: building conduit	Y	Y	Y	N	Y	Y
9	Plan: fiber/cable documentation	N	N	Y	N	Y	Y
10	Equipment replacement schedule	N	Y	Y	N	Y	Y
10	Multimedia retrofit of classrooms	N	Y	Y	N	Y	Y
10	Plan: interactive video	Y	Y	Y	N	Y	Y
10	Plan: Internet/WWW	N	Y	Y	N	Y	Y

#	Question	Chas	Dun	Fred	HJC	Har	How
10	Plan: faculty/staff training	N	Y	Y	N	Y	Y
10	Plan: library systems	N	Y	Y	N	Y	Y
10	Plan: alternative funding	N	Y	Y	N	Y	Y

IV. Administrative Systems
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
12	Systems integration	some	no	½	all	some	all
13	On client-server platforms	no	no	some	all	no	all
14	On relational database	some	no	some	all	no	all
15	Year 2000 compliant	some	no	some	all	no	all
16	Web-enabled/Web accessible	no	no	no	some	no	all
17	Web admissions application	N	N	N	N	N	Y
17	Web course schedule lookup	N	N	N	Y	N	Y
17	Web registration	N	N	N	N	N	Y
17	Web course drop/add processing	N	N	N	N	N	Y
17	Web financial aid application	N	N	N	N	N	Y
17	Web grade lookup	N	N	N	N	N	Y
17	Web grade posting	N	N	N	N	N	Y
17	Web payments	N	N	N	N	N	Y
18	EI time/attendance recording	Y	N	N	N	N	N
18	EI payroll direct deposit	Y	Y	Y	Y	N	Y
18	EI payroll tax payments	Y	N	Y	N	N	Y
18	EI Pension System contributions	Y	N	N	N	N	Y
18	EI 403b retirement contributions	Y	N	N	N	N	Y
18	EI purchase requisition recording	N	N	Y	N	N	N
18	EI purchase orders to vendors	N	N	Y	N	N	N
18	EI vendor payments	N	N	N	N	N	N
18	EI student grade recording	N	N	N	N	N	N
18	EI student transcript distribution	N	N	Y	Y	Y	Y
19	Administrative systems vendor	SofAG	SCT	campus	Dat	campus	CTD
20	Systems replacement	F99	F99	12/99	N	F98	7/98
21	Existing admin PCs: Old tech	200	55	285	90	147	140
21	Existing admin PCs: Pentium 133	20	35	5	10	3	210
21	Additional PCs needed by 2003	30	20	20	30	20	25

#	Question	Chas	Dun	Fred	HJC	Har	How
21	Total admin PCs needed in 2003	250	110	310	130	170	375
22	Admin. PCs w/Windows 95	all	some	some	some	some	½

V. Infrastructure
Responses from Mid-size Colleges

#	Question	Chas	Dun	Fred	HJC	Har	How
23	Buildings connected	all	all	all	all	all	all
24	Buildings w/5 UTP cabling	all	some	all	all	all	all
25	Labs w/Internet	½	some	all	½	all	all
26	Classrooms w/link	some	none	all	all	all	all
27	Administrators w/Internet	all	all	all	all	all	all
28	Faculty w/Internet	all	some	all	all	all	all
29	Faculty w/admin systems	all	½	all	all	all	all
30	Any station ↔ resource	Y	Y	Y	Y	Y	Y
31	Wide area network	Y	Y	Y	N	Y	Y
32	Dial in: selected staff	Y	Y	Y	Y	Y	Y
32	Dial in: faculty + staff	N	N	N	N	N	Y
32	Dial in: students	N	N	N	N	N	N
33	Network management system	N	Y	Y	N	Y	Y
34	LAN band: 10 MB Ethernet	Y	Y	Y	Y	Y	Y
34	LAN band: 100 MB Ethernet	Y	Y	Y	N	Y	Y
34	LAN band: 4 MB Token Ring	N	N	N	N	N	N
34	LAN band: 16 MB Token Ring	N	Y	N	N	N	N
34	LAN band: ATM	N	N	N	N	N	N
34	LAN band: FDDI	Y	N	N	N	Y	Y
34	LAN band: mainframe	Y	Y	Y	N	Y	N
35	Year PBX installed	1996	1996	1994	1986	1990	1984
36	Voice cable replaced	Y	N	Y	N	Y	N
37	Phone system capable	Y	N	Y	N	Y	N
38	Support PBX features	Y	Y	Y	N	Y	N
39	Plan to replace PBX	N	N	N	Y	N	Y
40	Touch tone phone registration	N	N	N	Y	N	Y
41	Phone network: E-mail	N	N	N	N	N	N
41	Phone network: Internet	N	N	N	N	N	N

#	Question	Chas	Dun	Fred	HJC	Har	How
41	Phone network: add/drop	N	N	N	Y	N	Y
41	Phone network: bill payment	N	N	N	Y	N	Y
41	Phone network: other	Y	N	N	Y	N	Y
42	Energy management network	N	N	Y	Y -	Y	Y
43	Fire detection network	N	N	Y	N	Y -	Y
44	Security network	Y	N	Y	N	N	Y-
45	Adequate conduit	Y	N	Y	N	N	Y
46	Redundant pathing	some	N	some	Y	N	some
47	Conduit ok to 2003	N	N	N	N	N	Y

I. Instructional Technology
Responses from Large Colleges (›5,000 FTEs)

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
1	Old PCs: classrooms	600	277	500	228	682	425
1	Old PCs: open computer labs	33	0	56	79	293	156
1	Old PCs: library	17	25	36	7	53	0
1	Old PCs: faculty offices	140	30	140	109	478	160
1	Old PCs: assessment	20	17	6	0	168	23
1	Old PCs: other	15	0	0	11	0	0
1	Total existing old PCs	825	349	738	434	1674	764
1	New PCs: classrooms	120	130	202	92	611	87
1	New PCs: open computer labs	1	0	0	0	149	105
1	New PCs: library	16	10	24	2	65	36
1	New PCs: faculty offices	10	90	17	3	235	50
1	New PCs: assessment	2	0	0	7	37	0
1	New PCs: other	6	0	0	0	0	10
1	Total existing current PCs	155	230	243	104	1097	288
1	Add PCs: classrooms	130	600	150	75	280	275
1	Add PCs: open computer labs	36	400	150	25	200	120
1	Add PCs: library	15	35	20	5	100	50
1	Add PCs: faculty offices	40	20	90	45	50	100
1	Add PCs: assessment	8	23	25	5	50	87
1	Add PCs: other	30	0	0	5	0	10
1	Additional PCs needed by 2003	259	1078	435	160	680	642
1	Total 2003: classrooms	850	1007	852	395	1573	787
1	Total 2003: open computer labs	70	400	206	104	642	381
1	Total 2003: library	48	70	80	14	218	86
1	Total 2003: faculty offices	190	140	247	157	763	310
1	Total 2003: assessment	30	40	31	12	255	110
1	Total 2003: other	51	0	0	16	0	20
1	Total instructional PCs in 2003	1239	1657	1416	698	3451	1694

I. Instructional Technology Responses from Large Colleges (›5,000 FTEs)							
#	Question	AACC	BCCC	Cat	Essx	Mont	PG
2	FT faculty: multimedia now	15	5	15	20	23	5
2	Adjunct faculty: multimedia now	2	0	12	10	50	7
2	FT faculty: distance learning now	16	3	20	2	23	35
2	Adjunct faculty: distance lrn now	3	0	20	0	50	5
2	FT faculty: multimedia additional	50	115	100	100	202	15
2	Adjunct fac: multimedia additional	40	0	100	200	450	20
2	FT faculty: distance lrn additional	24	22	100	48	202	40
2	Adjunct faculty: dist lrn additional	12	0	100	50	450	20
2	Total FT fac: multimedia 2003	65	120	115	120	225	20
2	Total adjunct fac: multimedia 2003	42	0	112	210	500	27
2	Total FT faculty: distance lrn 2003	40	25	120	50	225	75
2	Total adjunct fac: distance lrn 2003	15	0	120	50	500	25
3	Fiber-optic distance classrooms now	2	0	0	0	1	1
3	Digital compressed classrooms now	0	1	3	1	0	0
3	Satellite downlink classrooms now	10	0	6	1	3	6
3	Multimedia classrooms now	13	0	6	5	6	5
3	Fiber-optic distance classrooms add	0	2	0	3	2	1
3	Digital compressed classrooms add	3	0	9	1	0	2
3	Satellite downlink classrooms add	10	5	12	2	8	20
3	Multimedia classrooms additional	10	100	20	20	40	25
3	Total fiber-optic classrooms 2003	2	2	0	3	3	2
3	Total digital compressed 2003	3	1	12	2	0	2
3	Total satellite downlink 2003	20	5	18	3	11	26
3	Total multimedia classrooms 2003	23	100	26	25	46	30

II. Distance Learning
Responses from Large Colleges (>5,000 FTEs)

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
4	MIDLN: now	Y	N	N	N	Y	Y
4	Interactive compressed video: now	N	Y	Y	Y	N	N
4	ISDN: now	Y	N	Y	N	N	Y
4	Other interactive video: now	N	N	N	N	Y	Y
4	Internet instruction; now	Y	N	Y	N	Y	Y
4	Intranet instruction: now	Y	N	N	N	N	Y
4	BBS instruction: now	Y	Y	N	N	Y	Y
4	Audio/phone instruction: now	N	Y	Y	N	Y	Y
4	Satellite downlink: now	Y	N	Y	Y	Y	Y
4	Satellite uplink: now	N	N	N	N	N	N
4	College cable channel: now	Y	N	Y	Y	Y	Y
4	Video-based courses: now	Y	Y	Y	N	Y	Y
4	MIDLN: 2003	Y	Y	N	N	Y	Y
4	Interactive compressed video: 2003	Y	Y	Y	Y	Y	Y
4	ISDN: 2003	Y	Y	Y	N	Y	Y
4	Other interactive video: 2003	N	Y	N	N	Y	Y
4	Internet instruction: 2003	Y	Y	Y	Y	N	Y
4	Intranet instruction: 2003	Y	Y	N	Y	Y	Y
4	BBS instruction: 2003	Y	Y	N	N	N	Y
4	Audio/phone instruction: 2003	Y	Y	Y	N	N	Y
4	Satellite downlink: 2003	Y	Y	Y	Y	Y	Y
4	Satellite uplink: 2003	N	N	Y	N	N	N
4	College cable channel: 2003	Y	Y	Y	Y	Y	Y
4	Video-based courses: 2003	Y	Y	Y	N	Y	Y
5	Interactive video fees: FY97	44K	8K	19K	0	O	16K
5	Satellite charges: FY97	0	0	1K	0	O	7K
5	Interactive video fees: 2003	46K	40K	25K	0	O	21K
5	Satellite charges: 2003	0	10K	5K	0	O	3K

III. Technology Support
Responses from Large Colleges (>5,000 FTEs)

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
6	Current instructional PC staff	35.0	8.0	8.5	3.0	28.0	22.5
6	Current distance learning staff	2.0	incl.	2.0	1.0	9.0	5.5
6	Current administrative PC staff	incl.	incl.	6.0	2.0	19.0	10.0
6	Total current tech support staff	37.0	8.0	16.5	6.0	56.0	38.0
6	Additional inst. PC staff needed	10.0	22.0	3.5	5.0	11.0	10.0
6	Add. distance learn. staff needed	1.0	incl.	1.0	2.0	21.0	2.5
6	Add. admin. PC staff needed	incl.	incl.	0.0	5.0	17.0	10.0
6	Total additional staff needed	11.0	22.0	4.5	12.0	49.0	22.5
6	Total 2003 instr. PC staff	45.0	30.0	12.0	8.0	39.0	32.5
6	Total 2003 dist. learning staff	3.0	incl.	3.0	3.0	30.0	8.0
6	Total 2003 admin. PC staff	incl.	incl.	6.0	7.0	36.0	20.0
6	Total 2003 tech support staff	48.0	30.0	21.0	18.0	105.0	60.5
7	Have Technology Master Plan?	Y	Y	partial	Y	partial	Y
8	Fiber/copper cabling standards	Y	Y	Y	Y	Y	Y
8	Equipment standards	Y	Y	Y	N	Y	Y
8	Communication protocol standards	Y	Y	Y	Y	Y	Y
8	User training standards	Y	Y	N	Y	N	Y
9	Plan: telephone network	Y	Y	N	Y	Y	Y
9	Plan: video network	Y	Y	N	Y	Y	N
9	Plan: computer/data network	Y	Y	Y	Y	Y	Y
9	Plan: Internet/intranet network	Y	Y	Y	N	Y	Y
9	Plan: energy management	Y	Y	N	Y	Y	N
9	Plan: fire protection	Y	N	N	Y	Y	N
9	Plan: security	Y	Y	N	Y	Y	N
9	Plan: building conduit	Y	Y	Y	Y	Y	Y
9	Plan: fiber/cable documentation	Y	Y	Y	N	Y	N
10	Equipment replacement schedule	Y	Y	N	N	Y	Y
10	Multimedia retrofit of classrooms	N	Y	N	Y	N	N
10	Plan: interactive video	Y	Y	Y	Y	Y	Y
10	Plan: Internet/WWW	Y	Y	N	Y	Y	Y

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
10	Plan: faculty/staff training	Y	Y	N	Y	N	Y
10	Plan: library systems	Y	Y	N	N	Y	Y
10	Plan: alternative funding	N	Y	N	N	N	N

IV. Administrative Systems
Responses from Large Colleges (›5,000 FTEs)

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
12	Systems integration	some	some	all	some	some	all
13	On client-server platforms	some	no	no	some	some	no
14	On relational database	no	all	no	½	some	all
15	Year 2000 compliant	some	no	some	no	some	all
16	Web-enabled/Web accessible	some	no	some	some	no	no
17	Web admissions application	N	N	Y	N	N	N
17	Web course schedule lookup	Y	N	Y	N	N	Y
17	Web registration	N	N	N	N	N	N
17	Web drop/add processing	N	N	N	N	N	N
17	Web financial aid application	N	N	N	N	N	N
17	Web grade lookup	N	N	N	N	N	N
17	Web grade posting	N	N	N	N	N	N
17	Web payments	N	N	N	N	N	N
18	EI time/attendance recording	N	N	N	N	N	Y
18	EI payroll direct deposit	Y	N	Y	Y	Y	Y
18	EI payroll tax payments	N	N	N	Y	Y	N
18	EI Pension contributions	N	N	N	N	Y	N
18	EI 403b contributions	N	N	N	N	N	N
18	EI purchase requisitions	Y	N	N	N	N	N
18	EI purchase orders to vendors	N	N	N	N	N	N
18	EI vendor payments	N	N	N	N	N	N
18	EI student grade recording	N	N	N	N	N	Y
18	EI transcript distribution	Y	Y	Y	N	Y	Y
19	Administrative systems vendor	SCT	CO+	SCT+	SCT	SCT+	campus
20	Systems replacement	2002	2002	2002	12/99	12/99	10/98
21	Existing admin PCs: Old tech.	230	250	450	125	781	300
21	Admin PCs: Pentium 133+	15	50	50	10	400	300
21	Additional PCs needed by 2003	15	50	75	35	50	100

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
21	Total admin PCs needed 2003	260	350	575	170	1231	700
22	Administrative PCs w/Win 95	some	all	some	some	some	some

V. Infrastructure
Responses from Large Colleges (›5,000 FTEs)

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
23	Buildings connected	all	all	all	½	½	all
24	Buildings w/5 UTP cabling	½	all	½	½	some	all
25	Labs w/Internet	all	none	½	some	some	all
26	Classrooms w/link	all	all	some	none	some	some
27	Administrators w/Internet	all	all	½	some	½	all
28	Faculty w/Internet	all	all	½	some	½	½
29	Faculty w/admin systems	all	all	½	some	½	½
30	Any station ↔ resource	Y	Y	Y	Y	Y	Y
31	Wide area network	Y	N	Y	N	Y	Y
32	Dial in: selected staff	Y	N	Y	Y	Y	Y
32	Dial in: faculty + staff	N	N	Y	Y	N	Y
32	Dial in: students	Y	N	Y	N	N	Y
33	Network management system	Y	Y	Y	N	Y	N
34	LAN band: 10 MB Ethernet	Y	Y	Y	Y	Y	Y
34	LAN band: 100 MB Ethernet	Y	N	N	Y	Y	N
34	LAN band: 4 MB Token Ring	N	N	Y	N	N	N
34	LAN band: 16 MB Token Ring	N	N	Y	Y	Y	N
34	LAN band: ATM	N	Y	N	N	N	N
34	LAN band: FDDI	Y	N	N	Y	N	N
34	LAN band: mainframe	Y	N	Y	Y	Y	Y
35	Year PBX installed	1997	1996	1992	1995	1989	1993
36	Voice cable replaced	part	Y	N	N	N	N
37	Phone system capable	Y	Y	Y	N	Y	Y
38	Support PBX features	Y	Y	N	Y	N	Y
39	Plan to replace PBX	N	N	N	N	Y	N
40	Touch tone phone registration	Y	N	N	N	Y	Y
41	Phone network: E-mail	N	N	N	N	N	Y
41	Phone network: Internet	N	N	N	N	Y	Y

#	Question	AACC	BCCC	Cat	Essx	Mont	PG
41	Phone network: add/drop	Y	N	N	N	Y	Y
41	Phone network: bill payment	Y	N	N	N	Y	Y
41	Phone network: other	N	N	Y	Y	Y	Y
42	Energy management network	Y -	Y -	Y -	Y -	Y	Y -
43	Fire detection network	Y -	N	Y -	Y -	Y	Y -
44	Security network	Y -	Y -	Y -	N	Y -	N
45	Adequate conduit	Y	Y	Y	Y	Y	Y
46	Redundant pathing	Y	N	some	N	some	N
47	Conduit ok to 2003	Y	Y	Y	N	Y	Y